TICRP1

# NASA'S CASSINI SCIENTIST FOR A DAY
## CASSINI PEOPLE OUTREACH DEPARTMENT, JPL, NASA
## PLANETARY SOCIETY, INDIA (National Point of Contact)

**Name :** E. Radhe Shyam

**Class:** IX **Section :** A

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**Father's/~~Guardian Name~~ :** E. Rajesham

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**Declaration**

I/We agree to assign copyright to JPL so that JPL and NASA can post the essays, as excerpts or in their entirety, on NASA Web sites. I/We agree if selected would attend the Videoconference fulfilling necessary requirements as and when stated by the Society.

Thanking you

R1 Students Name : E. Radheshyam **Father/~~Guardian's~~ Name:** E. Rajesham

K1 Signature : Radhey E **Signature:**

**Note :** Society welcomes Interested Parents/Individuals/Govt/Private organizations to assist society 1. to raise support/sponsorship for various expenses in their Official/Personal capacity. 2. Lend time/expertise for organizing the Videoconference. Email: planetarysocietyindia@gmail.com

AB Review

## Instructions For Teacher In Charge/Parent/Guardian Submitting the Final Essays:

1. This opportunity is open to all students in India who are in grades 5 to 10. Essays will be divided in two groups: grades 5 to 7 and 8 to 10.
2. Communication skills are an important part of being a scientist. Spelling and grammar will be considered, in addition to the ideas expressed in your essay.
3 . **Date of Videoconference** which is planned to be held in december (our request for this date is awaiting approval from Cassini Outreach, JPL, NASA).
6. **Dress Code** may be suggested Organizers /Special T-Shirt at cost may be printed.
7. The winning Schools will participate videoconference with Cassini scientists (depending on the conferencing technology made available Organizers)
i. Indirect (Winner ask question and Mission Scientist reply in video)
ii. Directly (Involving ex NASA Scientist)
8. The decision of the judges Communicated by National Coordinator is final.
9. **Submission of Essays :** should be delivered to

**For Students:**
**1. Write an essay (500 words maximum) explaining which one of the three possible imaging targets you chose, and explain why.**
**2. Suggestions: i). Try reading all the Material given. Don't miss to read Set 1 & Set 2 and Science Objectives of your Target.**
**ii).** You can Work/write your essay based on the hidden clues suggested in the Description or Transcripts of Videos or the questions asked in the target to be chosen by you. You can also use Actual Mission Objectives or Science Objectives Info regarding Mimas, Tethys, Prometheus etc.. mostly which is available in Set 3 for some targets.
3. All submissions must be students' original work. Each student can submit only one entry selecting only one Target .

**4. Attach Separate page with following information:**
**i. Target Chosen: With Title and Target No.**
**ii. Name of the Student & Father Name along with Phone/Mobile No.**
**iii. Summary in 50 -75 Words.**
**iv. Name of School with Phone No. – In charge Teacher**

**Note: The names and contact information, Summary of 50-75 words above will NOT be included in the word count for the 500-word essay.**

5. Participants agree to assign copyright to JPL so that JPL and NASA can post the essays, as excerpts or in their entirety, on NASA Web sites.

ii, Target Chosen : Target no: 1 : Saturn and its Rings

iii, Name - E. Radhe Shyam

Father's name - E. Rajesham  Ph. no: 9347256728

iii, Summary :

1> Studying the Magnetosphere may provide us with information of conditions in which planets were formed.

2> Studying rings can reveal new moonlets.

3> We can arrive at a apt conclusion to define spokes.

4> The cryovolcanism of Enceladus may be responsible for the survival of 'E' ring.

5> Enceladus may have stores of water buried in it.

6> The gaps between rings may be due to gravitational influences of various moons.

(vi) School - C.R.P.F Public School

As a Mission scientist, my mission is 'Target I' i.e. Saturn and its rings. From the time when Saturn was discovered, scientists were fasinated and puzzled by the rings of the Saturn. With the help of instruments on board Cassini; we may be able to find the origin of these rings. We can study the composition of these rings. We can know the source of the magnetosphere of Saturn. We can have an opportunity to study the cryovolcanic plume and the Geological activity of Enceladus..

The mission objectives I hope to achieve are -

(i) Determine the composition of the particles of the Rings
(ii) Determine composition of particles on Enceladus.
(iii) Define how Enceladus contributes to the 'E' Ring
(iv) Investigate the distribution of plasma particles in the magnetosphere.
(v) Study the interference of Enceladus with the magnetosphere of Saturn.
(vi) Discover any new rings if possible.
(vii) Study the ~~expression~~ composition of the cryovolcanic

same.

(viii) Study the magnosphere to determine its source.

(ix) Study the rings for new moon bits.

(x) Investigate formation of spokes and their variation.

To achieve the above aims, the instruments needed are:-

i) Cassini Plasma Spectrometer - It helps to find plasma in the near Saturn's magnetic feild.

ii) Composite Infrared Spectrometer - Helps the know the temperature at various belts of Rings and the composition at different places.

iii) Cosmic Dust Analyzer - May help to find the source of ice in the 'E' Ring. (if it comes from Enceladus).

iv) Dual Technique Magnetometer - Helps to find the influence of Saturn's atmosphere and rings on the magnetic feild (magnetosphere).

v) Magnetospheric Imaging Instrument :- Helps to find the density of plasma in the magnetosphere.

vii) Ultraviolent Imaging Spectrograph - It helps to know the structure and chemistry of Geological features on Enceladus.

Studying the rings of Saturn may prove beneficial. The spokes of the sun may be ice particles arranged in a narrow belt which illumine when sun's rays fall on them. The variation in density of the rings may be due to the variation in the pattern of gravitational waves caused by various atmospheric disturbances. Studying this pattern will lead to a greater understanding of the organization of our own solar system. The availability of water on Saturn's moon Enceladus may be because, when a meteorite or a comet containing water might have hit Enceladus during early period of its formation and may have been formed.

deposited water and other particles in the form of clouds. By the passage of time it might have been collected into craters and covered by debris. being collected on the surface. like fossil fuels. The "Ring system" of Saturn is like a mini 'Solar system' in itself. if we find out the origin of the ring. we may know how our planets might have formed. Knowning about the magnetosphere may provide us with greater knowledge of conditions ~~knew~~ in which planets formed. ~~As~~ as the magnetic field of Saturn is quite familiar to that of earth, understanding it may help us know about the origin of Earth. And if the 'water' in the Enceladus comes out to surface. it will effect the topography of the satellite.. Studying these rings may help us discover new moon lets.